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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/722,556	11/28/2003	Tomoaki Abe	ST3001-0035	4976

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EXAMINER

HU, SHOUXIANG

ART UNIT PAPER NUMBER

2811

DATE MAILED: 09/19/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/722,556

Applicant(s)

ABE ET AL.

Examiner

Shouxiang Hu

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 July 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) 4,5,7-10,13-17 and 20 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3,6,11,12,18,19,21 and 22 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. According to previous office actions and the latest amendment, claims 1-22 are pending in this application; and claims 1-3, 6, 11-12, 18-19 and 21-22 remain active in this office action.

Claim Objections

2. Claims 1-3, 6, 11-12, 18-19 and 21-22 are objected to because of the following informalities and/or defects:

Claim 1 recites the subject matters that "one of said respective metallic films is composed of a material that is directly connected to one of said electrodes of the light emitting diode chip via a conductive adhesive"; but it fails to clarify which one, the one of said metallic films or the material, is definitely the subject that is directed connected to the one of the said electrodes.

In claims 1 and 18, the term of "directed connected to" and the term of "via a conductive adhesive" appear to be contradictory to each other.

Claim 2 recites the term of "a first metallic film", but fails to clarify its relationship with the "one of said respective metallic films" recited in claim 1.

Claim 19 recites the term of "another metallic film", but fails to clarify its relationship with the "said metallic film" recited in claim 18.

Claim 19 recites the subject matter that the upper electrode is connected to the “at least one metallic film”; but the “at least one metallic film” as defined in claim 18 is already connected to the electrode with a bonding conductive adhesive therebetween.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 1-3, 6, 11-12, 18-19 and 21-22, insofar as being supported by the elected species, are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claims 1 and 18 each recite the subject matter that the recited one metallic film is composed of a material that is directly connected to one of the electrodes via a conductive adhesive and/or the material is formed directly on a surface of the resin; and/or that the same material is exposed at the bottom mount surface. However, the original specification lacks an adequate description regarding in what sense the material in the one metallic film is directly connected to the one electrode via the recited conductive adhesive, given that the recited film formed of a material (such as 5 in the

elected species of Figs. 1-3) has a reflective surface layer (20; such reflective surface layer is intended to be comprised at least in the claimed invention of claim 1 as evidenced in claim 3) that is formed of a coating material coated on the material of 5. It is further via/through this coating material, the recited metal film (5) in the elected species is connected to the recited electrode and/or formed on the recited resin. And, it is the material of a bottom portion of the metallic film (5), not the coating layer (20), that is exposed at the bottom mount surface. And, the original disclosure also lacks an adequate description regarding whether and/or how the recited metallic film and the reflective coating layer are formed of an exactly same material (which requires at least the same element(s) and same density).

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 18 and 19 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 18 recites the subject matters that the recited material “is formed directly on and exposed from a surface”, but fails to clarify by what sense and/or how the portion of that same material that is formed directly on the recited surface could also be exposed from the same recited surface. The term of “formed directly on” and the term of “exposed from” appear to be contradictory with each other with respect to the same recited surface.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1-3, 18-19 and 21-22, insofar as being compliance with 35 U.S.C. 112, as being fully supported by the elected species, and as being best understood in view of the claim objections above, are rejected under 35 U.S.C. 102(a) as being anticipated by Murakami (Murakami et al., JP 2003-174200, June, 2003; please see US 2006/0054912 for its English translation).

Murakami discloses a surface-mounted light-emitting diode (Figs. 3-19; also see [0095]), comprising: a light-emitting diode (LED) chip (1) sealed in an optically transmissive resin (4); a plurality of metallic films (201, 202, 301); and a plurality of electrodes formed on the surfaces of the light-emitting diode chip and connected to respective ones of the metallic films, including an upper electrode of the LED connected to the metallic film (301) via a bonding wire (5). And, at least the metallic film (210, 202) is composed of a material (whose bottom portion is exposed at the bottom mount surface) that is connected to the lower electrode of the LED via a conductive adhesive (silver paste). Such connection via the conductive adhesive can be regarded as being substantially "directly connected" electrically between the material of the metallic film

and the lower electrode, since there is no any substantially electrically resistive element between the metallic film and the conductive adhesive.

Regarding claim 3, the metallic film (201, 202) in Murakami has a substantially conical shape that can further have a reflective surface (6).

Regarding claim 18, the metallic film or films (201 and/or 301) can be regarded as being “formed directly on” a surface of the resin (4), in the sense that the metallic film or films has/have a direct overlap with the resin (4). And, any potential process implications of the term of “formed directly on” are treated here as process limitations; but, these would not carry patentable weight in this claim drawing to a structure, because distinct structure is not necessarily produced. In re Thorpe, 227 USPQ 964, 966 (Fed. Cir. 1985).

Regarding claims 21 and 22, it is noted that any process limitations regarding how the recited metallic film is made, such as the limitations of “plated” and/or “evaporation deposited”, would not carry patentable weight in the claims drawing to a structure, because distinct structure is not necessarily produced. In re Thorpe, 227 USPQ 964, 966 (Fed. Cir. 1985).

6. Claims 1-2, 18-19 and 21-22, insofar as being compliance with 35 U.S.C. 112, as being fully supported by the elected species, and as being best understood in view of the claim objections above, are further rejected under 35 U.S.C. 102(b) as being anticipated by Yamaguchi (US 6,392,294).

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Yamaguchi discloses a surface-mounted light-emitting diode (Figs. 1-2; also see col. 4, lines 19-20), comprising: a light-emitting diode (LED) chip (3) sealed in an optically transmissive resin (5); a plurality of metallic films (21a, 2A, 21b, 2B); and a plurality of electrodes formed on the surfaces of the light-emitting diode chip and connected to respective ones of the metallic films, including an upper electrode of the LED connected to the metallic film (21b, 2B) via a bonding wire (4). And, at least the metallic film (21a, 2A) is composed of a material (whose bottom portion is exposed at the bottom mount surface) that is directly connected to the lower electrode of the LED via a conductive adhesive (silver paste).

Furthermore, it is noted that any process implications, either recited directly or implicated in the claims, such as the terms of “formed”, “formed directly on”, “plated” and/or “evaporation deposited”, are treated here as process limitations; but, these would not carry patentable weight in this claim drawing to a structure, because distinct structure is not necessarily produced. In re Thorpe, 227 USPQ 964, 966 (Fed. Cir. 1985).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 6, 11 and 12, insofar as being compliance with 35 U.S.C. 112, as being fully supported by the elected species, and as being best understood in view of the claim objections above, are rejected under 35 U.S.C. 103(a) as being unpatentable over Murakami in view of Ogihara (Ogihara et al., US 5,523,590) and/or Fjelstad (US 6,583,444).

The disclosure of Murakami is discussed as applied to claims 1-3, 18-19 and 21-22 above.

Regarding claim 11, although Murakami does not expressly disclose that an additional upper electrode can be formed on the diode chip and connected to an additional metallic film, one of ordinary skill in the art would readily recognize that additional upper electrode(s) can be desirably formed on the diode chip in order to be able to form a desired LED array, as evidenced in Ogihara (see the upper electrodes 20a and/or 20b, and the common lower electrode 25 in Figs. 1 and 2).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the additional upper electrode(s) of Ogihara into the device of Murakami with additional metallic film(s) being formed correspondingly to accommodate such additional upper electrode(s), so that a light-emitting device with a desired LED array would be obtained.

Regarding claims 6 and 12, although Murakami does not expressly disclose that a resinous lens can be formed over the LED, one of ordinary skill in the art would readily recognize that such lens can be desirably formed on the diode chip in order to formed a desired focused light, as evidenced in Fjelstad (see the lens 360 in Fig. 8A).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the lens of Fjelstad into the device of Murakami, so that a light-emitting device with desired focused light would be obtained.

8. Claim 11, insofar as being compliance with 35 U.S.C. 112, as being fully supported by the elected species, and as being best understood in view of the claim objections above, is further rejected under 35 U.S.C. 103(a) as being unpatentable over Yamaguchi in view of Ogihara (Ogihara et al., US 5,523,590).

The disclosure of Yamaguchi is discussed as applied to claims 1-2, 18-19 and 21-22 above.

Although Yamaguchi does not expressly disclose that an additional upper electrode can be formed on the diode chip and connected to an additional metallic film, one of ordinary skill in the art would readily recognize that additional upper electrode(s) can be desirably formed on the diode chip in order to be able to form a desired LED array, as evidenced in Ogihara (see the upper electrodes 20a and/or 20b, and the common lower electrode 25 in Figs. 1 and 2).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the additional upper electrode(s) of Ogihara into the device of Yamaguchi with additional metallic film(s) being formed correspondingly to accommodate such additional upper electrode(s), so that a light-emitting device with a desired LED array would be obtained.

9. Claims 3, 6 and 12, insofar as being compliance with 35 U.S.C. 112, as being fully supported by the elected species, and as being best understood in view of the claim objections above, are further rejected under 35 U.S.C. 103(a) as being unpatentable over Yamaguchi in view of Fjelstad (US 6,583,444); or, in the alternative, they are further rejected under 35 U.S.C. 103(a) as being unpatentable over Fjelstad in view of Yamaguchi.

The disclosure of Yamaguchi is discussed as applied to claims 1-2, 18-19 and 21-22 above.

Although Yamaguchi does not expressly disclose that the metallic film can have a conical shape with a reflective surface, and/or that a resinous lens can be formed over the LED, one of ordinary skill in the art would readily recognize that such conical shape with reflective surface and/or such lens can be desirably formed in order to form a desired focused light, as evidenced in Fjelstad (see the conical shaped metallic film 326 in Fig. 8A, which can naturally reflect light, more or less, as it is formed of a metal such as copper; and see the lens 360 in Fig. 8A).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the conical-shaped metallic film and/or the lens of Fjelstad into the device of Yamaguchi, so that a light-emitting device with desired focused light would be obtained.

Or, in the alternative, Fjelstad disclosed the claimed invention in the embodiment of Fig. 8A, including the LED (332, which naturally including at least an upper electrode and a lower electrode), the sealing resin 348, the lens 360, and the metallic films (326,

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and the metallic film at the left side that is connected to the upper electrode of the LED via a bonding wire 344) that have bottom portions exposed at the bottom mount surface of the LED, except the recited limitation of a conductive adhesive. However, as evidenced in Yamaguchi (see Figs. 1-2), a conductive adhesive is commonly required in the art in order to bond the lower electrode of the LED to the bonding pad/area of the underling metallic film (see col. 4, lines 19-20).

Therefore, it would also have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the conductive adhesive of Yamaguchi into the device of Fjelstad, so that a light-emitting device with the commonly required bonding between the LED and the underling bonding pad/area would be obtained.

Response to Arguments

10. Applicant's arguments with respect to claims 1-3, 6, 11-12, 18-19 and 21-22 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

11. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within

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TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

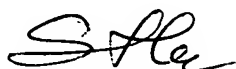
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shouxiang Hu whose telephone number is 571-272-1654. The examiner can normally be reached on Monday through Thursday, 7:30 AM to 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eddie C. Lee can be reached on 571-272-1732. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

SH

September 12, 2006



SHOUXIANG HU
PRIMARY EXAMINER